

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application.

**Listing of the Claims:**

1 Claim 1. (Previously Presented) An image sensor comprising:

2 a plurality of pixels each having an output, each pixel including:

3 a first circuit that produces a signal proportional to incident light intensity,

4 said first circuit being connected to supply said proportional signal to said pixel

5 output,

6 a select node connected to receive a select signal for selecting said pixel

7 from said plurality of pixels, and

8 a reset transistor for resetting said pixel;

9 an amplifier having:

10 a first input for receiving said outputs of said pixels, and

11 an output coupled to said reset transistors to provide a negative feedback

12 signal to a selected pixel; and

13 a reset reference voltage source connected to apply a reset reference voltage signal to

14 said amplifier to provide a voltage reference for controlling reset of said pixels.

1 Claim 2. (Previously Presented) The image sensor of claim 1 wherein said amplifier

2 further includes a second input receiving said reset reference voltage signal.

1 Claim 3. (Previously Presented) The image sensor of claim 2 wherein said reset

2 transistor includes a gate and first and second terminals, said first terminal connected to receive

3 said negative feedback signal to adjust said second terminal's voltage to a selected reset voltage.

1           Claim 4. (Previously Presented) The image sensor of claim 3 wherein said reset  
2 reference voltage source signal is selected to control said voltage at said second reset transistor  
3 terminal to be about  $V_T - \Delta V$  below a reset voltage applied at said gate terminal of said reset  
4 transistor, where  $V_T$  is a threshold voltage that is characteristic of said reset transistor, and  $\Delta V$  is  
5 selected to maintain said reset transistor in a subthreshold region of operation during a steady  
6 state phase of pixel reset.

1           Claim 5. (Previously Presented) The image sensor of claim 4 wherein said selected  $\Delta V$   
2 is greater than about one hundred millivolts.

1           Claim 6. (Previously Presented) The image sensor of claim 4 wherein said select node of  
2 each said pixel comprises a terminal of a row select transistor that is coupled to said first input of  
3 said amplifier.

1           Claim 7. (Previously Presented) The image sensor of claim 6 wherein each said pixel  
2 further comprises a source follower transistor coupled between said second terminal of said reset  
3 transistor and a terminal of said row select transistor.

1           Claim 8. (Previously Presented) The image sensor of claim 3 wherein said first circuit  
2 comprises a photocircuit.

1           Claim 9. (Previously Presented) The image sensor of claim 8 wherein said amplifier  
2 comprises a differential amplifier including a first differential amplifier input transistor  
3 connected to receive said first amplifier input and a second differential amplifier input transistor  
4 connected to receive said second amplifier input, said first and second differential amplifier input  
5 transistors connected to provide a signal to a current mirror circuit that is connected to deliver  
6 said negative feedback signal to said reset transistor first terminal.

1           Claim 10. (Previously Presented) The image sensor of claim 8 wherein said photocircuit  
2 includes a photodiode and a capacitance.

1           Claim 11. (Previously Presented) The image sensor of claim 7 wherein said first circuit  
2           is a photocircuit.

1           Claim 12. (Previously Presented) The image sensor of claim 11 wherein said  
2           photocircuit includes a photodiode and a capacitance.

1           Claim 13. (Previously Presented) An image sensor array having rows and columns of  
2           pixels, comprising:

3           at least one column line;  
4           a plurality of pixels each having an output, the outputs of pixels in a column being  
5           connected to a common respective column line, each said pixel including:

6                       a first circuit that produces a signal proportional to incident light intensity,  
7                       said first circuit being connected to supply said proportional signal to said pixel  
8                       output, and

9                       a reset transistor for resetting said pixel;  
10           at least one amplifier, each said amplifier having a first input coupled to at least one said  
11           column line, each said amplifier being connected to provide a negative feedback signal to each  
12           said pixel reset transistor of a respective column of pixels; and

13           a reset reference voltage source connected to apply a reset reference voltage signal to each  
14           said amplifier to provide a voltage reference for controlling reset of said pixels.

1           Claim 14. (Previously Presented) The image sensor of claim 13 wherein said amplifier  
2           further includes a second input for receiving said reset reference voltage signal.

1           Claim 15. (Previously Presented) The image sensor of claim 14 wherein said reset  
2           transistor includes a gate and first and second terminals, said first terminal connected to receive  
3           said negative feedback signal to adjust said second terminal's voltage to a selected reset voltage.

1           Claim 16. (Previously Presented) The image sensor of claim 15 wherein said reset  
2 reference voltage source signal is selected to control said voltage at said second reset transistor  
3 terminal to be about  $V_T - \Delta V$  below a reset voltage applied at said gate terminal of said reset  
4 transistor, where  $V_T$  is a threshold voltage that is characteristic of said reset transistor, and  $\Delta V$  is  
5 selected to maintain said reset transistor in a subthreshold region of operation during a steady  
6 state phase of pixel reset.

1           Claim 17. (Currently Amended) The image sensor array of ~~claim 15~~ claim 16 wherein  
2 said selected  $\Delta V$  is greater than about one hundred millivolts.

1           Claim 18. (Previously Presented) The image sensor array of claim 16 wherein each pixel  
2 comprises a row select transistor coupled between said second terminal of said reset transistor  
3 and said first input of said amplifier.

1           Claim 19. (Previously Presented) The image sensor array of claim 18 wherein each pixel  
2 further comprises a source follower transistor coupled between said second terminal of said reset  
3 transistor and a terminal of said row select transistor.

1           Claim 20. (Previously Presented) The image sensor array of claim 16 wherein said first  
2 circuit of each pixel comprises a photocircuit.

1           Claim 21. (Previously Presented) The image sensor array of claim 20 wherein said  
2 amplifier comprises a differential amplifier including a first differential amplifier input transistor  
3 connected to receive said first amplifier input and a second differential amplifier input transistor  
4 connected to receive said second amplifier input, said first and second differential amplifier input  
5 transistors connected to provide a signal to a current mirror circuit that is connected to deliver  
6 said negative feedback signal to said reset transistor first terminal.

1           Claim 22. (Previously Presented) The image sensor array of claim 20 wherein said  
2 photocircuit of each active pixel comprises a photodiode and a capacitance.

1           Claim 23. (Previously Presented) The image sensor array of claim 19 wherein each said  
2           first circuit comprises a photocircuit.

1           Claim 24. (Previously Presented) The image sensor array of claim 23 wherein each said  
2           photocircuit comprises a photodiode and a capacitance.

1           Claim 25. (Currently Amended) A An image sensor array having rows and columns of  
2           pixels, comprising:  
3                 at least one row line;  
4                 a plurality of pixels each having an output, the outputs of pixels in a row being connected  
5           to a common respective row line, each said pixel including:  
6                         a first circuit that produces a current proportional to incident light  
7                         intensity, said first circuit being connected to supply said proportional current to  
8                         said pixel output, and  
9                         a reset transistor for resetting said pixel;  
10                 at least one amplifier, each said amplifier having a first input coupled to at least one said  
11           row line, each said amplifier being connected to provide a negative feedback signal to each said  
12           pixel reset transistor of a respective row of pixels; and  
13                 a reset reference voltage source connected to apply a reset reference voltage signal to each  
14           said amplifier to provide a voltage reference for controlling reset of said pixels.

1           Claim 26. (Previously Presented) The image sensor of claim 25 wherein said amplifier  
2           further includes a second input for receiving said reset reference voltage signal.

1           Claim 27. (Previously Presented) The image sensor of claim 26 wherein said reset  
2           transistor includes a gate and first and second terminals, said first terminal connected to receive  
3           said negative feedback signal to adjust said second terminal's voltage to a selected reset voltage.

1           Claim 28. (Previously Presented) The CMOS image sensor of claim 27 wherein said  
2 reset reference voltage source signal is selected to control said voltage at said second terminal to  
3 be about  $V_T - \Delta V$  below a reset voltage applied at said gate terminal of said reset transistor, where  
4  $V_T$  is a threshold voltage that is characteristic of said reset transistor, and  $\Delta V$  is selected to  
5 maintain said reset transistor in a subthreshold region of operation during a steady state phase of  
6 pixel reset.

1           Claim 29. (Currently Amended) The image sensor array of ~~claim 27~~ claim 28 wherein  
2 said selected  $\Delta V$  is greater than about one hundred millivolts.

1           Claim 30. (Previously Presented) The image sensor array of claim 28 wherein each pixel  
2 comprises a column select transistor coupled between said second terminal of said reset transistor  
3 and said first input of said amplifier.

1           Claim 31. (Previously Presented) The image sensor array of claim 30 wherein each pixel  
2 further comprises a source follower transistor coupled between said second terminal of said reset  
3 transistor and a terminal of said column select transistor.

1           Claim 32. (Previously Presented) The image sensor array of claim 28 wherein said first  
2 circuit of each pixel comprises a photocircuit.

1           Claim 33. (Previously Presented) The image sensor array of claim 32 wherein said  
2 amplifier comprises a differential amplifier including a first differential amplifier input transistor  
3 connected to receive said first amplifier input and a second differential amplifier input transistor  
4 connected to receive said second amplifier input, said first and second differential amplifier input  
5 transistors connected to provide a signal to a current mirror circuit that is connected to deliver  
6 said negative feedback signal to said reset transistor first terminal.

1           Claim 34. (Previously Presented) The image sensor array of claim 32 wherein said  
2 photocircuit of each pixel comprises a photodiode and a capacitance.

1           Claim 35. (Previously Presented) The image sensor array of claim 31 wherein each said  
2           first circuit comprises a photocircuit.

1           Claim 36. (Previously Presented) The image sensor array of claim 35 wherein each said  
2           photocircuit comprises a photodiode and a capacitance.

1           Claim 37. (Previously Presented) The image sensor of claim 1 wherein said image  
2           sensor comprises a CMOS-compatible image sensor.

1           Claim 38. (Previously Presented) The image sensor array of either of claims 13 or 25  
2           wherein said image sensor array comprises a CMOS-compatible image sensor array.

1           Claim 39. (Previously Presented) The image sensor of claim 1 wherein said pixels  
2           comprise active pixels.

1           Claim 40. (Previously Presented) The image sensor array or either of claims 13 or 25  
2           wherein said pixels comprise active pixels

**Amendments to the Drawings:**

Attached are 7 replacement sheets of drawings.

Replacement Sheet 1, Figs. 1-2, replaces the original sheet including Figs. 1-2.

In Fig. 1, the legend "Prior Art" has been added. In Fig. 2, the reference voltage,  $V_R$ , has been circled in the manner of a voltage source.

Replacement Sheet 2, Fig. 3, replaces the original sheet including Fig. 3.

In Fig. 3, the reference voltage,  $V_R$ , has been circled in the manner of a voltage source.

Replacement Sheet 3, Fig. 4a, replaces the original sheet including Fig. 4a.

In Fig. 4a, the reference voltage,  $V_R$ , has been circled in the manner of a voltage source.

Replacement Sheet 4, Fig. 4b, replaces the original sheet including Fig. 4b.

In Fig. 4b, the reference voltage,  $V_R$ , has been circled in the manner of a voltage source.

Replacement Sheet 5, Figs. 5-6, replaces the original sheet including Figs. 5-6.

In Figs. 5 and 6, the reference voltage,  $V_R$ , has been circled in the manner of a voltage source.

Replacement Sheet 6, Fig. 7, replaces the original sheet including Fig. 7.

In Fig. 7, the reference voltage,  $V_R$ , has been circled in the manner of a voltage source.

Replacement Sheet 7, Fig. 8, replaces the original sheet including Fig. 8.

In Fig. 8 the reference voltage,  $V_R$ , has been circled in the manner of a voltage source.